

SECTION III—REMARKS

This response is submitted in reply to the Office Action mailed August 3, 2006. No claims are amended and claims 14-25 remain pending in the application. Claims 14-25 presently stand rejected. Applicants respectfully request reconsideration of the application and allowance of all pending claims in view of the following remarks.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claims 14-15 and 19 as anticipated under 35 U.S.C. § 102(e) by U.S. Patent No. 6,396,711 to Degani *et al.* (“*Degani*”). Applicants respectfully traverse the Examiner’s rejections. A claim is anticipated only if each and every element, as set forth in the claim, is found in a single prior-art reference. MPEP § 2131; *Verdegaal Bros. v. Union Oil of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). For at least the reasons explained below, *Degani* cannot anticipate these claims because it does not disclose every element and limitation recited therein.

Claim 14 recites a process of forming a micro electromechanical (MEMS) package comprising:

providing a semiconductor device including an active surface;

providing a conveyance with at least one embedded MEMS device disposed therein; and

supporting the conveyance over the active surface using a plurality of electrical contacts in a contact array, wherein the at least one embedded MEMS device communicates electrically to the semiconductor device via at least one of the contacts in the contact array.

(italics added). *Degani* does not disclose, teach or suggest a process including these limitations. In Figure 2, *Degani* teaches a silicon substrate 32 with a MEMS device 31 mounted on the silicon substrate (see col. 3, lines 34-35). The Examiner has characterized the silicon wafers 34, 35 and 36 of *Degani* as a conveyance in which MEMS device 31 is embedded. Even if this characterization were correct, which Applicants do not concede, *Degani* does not disclose that the alleged conveyance is supported over an active surface using a plurality of electrical contacts in a contact array; in fact, as shown in figure 2, the conveyance is mounted directly upon the surface of silicon substrate 32 without any intervening structure whatsoever. Furthermore, the alleged conveyance rests on the top surface of silicon substrate 32 while contact pads 39 are located on the bottom surface of silicon substrate 32, making it impossible for contact pads 39 to support the conveyance over any surface, active or not.

Additionally, *Degani* does not disclose that MEMS device 31 communicates electrically to the silicon substrate 32 via at least one of the contact pads 39. *Degani* teaches that the interconnection between MEMS device 31 and silicon substrate 32 can take the form of wire bonds as shown in figure 2 or standard IC interconnect technology such as including on substrate 32 a grown or deposited oxide with aluminum metallization interconnect patterns photolithographically formed on the oxide. *Degani* does not teach that interconnection between MEMS device 31 and silicon substrate 32 is via electrical contacts 39 because MEMS device 31 is mounted directly on the top surface of semiconductor device, while electrical contacts 39 are arranged on a bottom side of silicon substrate 32 to provide for communication to socket 52. *Degani* therefore cannot disclose, teach or suggest a process combination including “supporting the conveyance over the active surface using a plurality of electrical contacts in a contact array, wherein

the at least one embedded MEMS device communicates electrically to the semiconductor device via at least one of the contacts in the contact array.” Applicants submit that claim 14 is therefore allowable, and respectfully request withdrawal of the rejection and allowance of the claim.

Regarding claims 15 and 19, if an independent claim is allowable, then any claim depending therefrom is also allowable. *See generally* MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 14 is in condition for allowance. Applicants submit that claims 15 and 19 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicants therefore respectfully request withdrawal of the rejections and allowance of these claims.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 16-18, 21-22 and 23-25 under 35 U.S.C § 103(a) as obvious in view of, and therefore unpatentable over, different combinations of *Degani*, U.S. Patent No. 5,919,548 to Barron (“*Barron*”) and U.S. Patent No. 6,452,238 to Orcutt *et al.* (“*Orcutt*”). In particular, the Examiner rejected claims 16-18 as unpatentable over *Degani* in view of *Barron*, rejected claims 21-22 as unpatentable over *Degani*, *Barron* and in further view of *Orcutt* and rejected claims 23-25 as unpatentable over *Degani* in view of *Orcutt*.

As to claims 16-18 and 21-22, Applicants respectfully traverse the Examiner’s rejections. If an independent claim is non-obvious under 35 U.S.C. § 103 then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 14 is in condition for allowance. Applicants

submit that claims 16-18 and 21-22 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of the features recited therein. Applicants therefore respectfully request withdrawal of the rejections and allowance of the claims.

As to claims 23-25, Applicants also respectfully traverse the Examiner's rejection. To establish a *prima facie* case of obviousness, the Examiner must establish that three criteria are met: (1) the prior art references must teach or suggest all the claim limitations; (2) some suggestion or motivation to combine the references must be found in the prior art; and (3) there must be a reasonable expectation of success. MPEP § 2143. As explained below, Applicants respectfully submit that the Examiner has not established a *prima facie* case of obviousness.

Claim 23 recites a process comprising:

providing a semiconductor device;

accommodating a detached micro electromechanical structure (MEMS) device upon the semiconductor device;

supporting a conveyance over an active surface using a plurality of electrical contacts in a contact array, wherein the conveyance surrounds the detached MEMS device and the detached MEMS device communicates electrically to the semiconductor device via at least one of the contacts in the contact array; and

contacting encapsulation material with at least one of the semiconductor device, the detached MEMS device, and the conveyance to form an integrated MEMS package.

(italics added). The Examiner alleges that *Degani* discloses every element and limitation of the claim except for contacting an encapsulation material with at least one of the semiconductor device, the detached MEMS device and the conveyance to form an integrated MEMS package. To make up for these deficiencies in *Degani*, the Examiner cites *Orcutt* and concludes that it would have been obvious to one of ordinary skill in the art at the time of the invention to combine *Degani* with *Orcutt* to arrive at the claimed invention.

Applicants respectfully disagree. As discussed above for independent claim 14, *Degani* does not teach a combination including “supporting a conveyance over an active surface using a plurality of electrical contacts in a contact array, wherein the at least one embedded MEMS device communicates electrically to the semiconductor device via at least one of the contacts in the contact array.” Instead, *Degani* teaches silicon wafers 34, 35 and 36 that are mounted directly upon the surface of a silicon substrate without any intervening structure whatsoever. The Examiner cites *Orcutt* only for its alleged disclosure of using an encapsulation material. *Orcutt* thus does not make up for the deficiencies of *Degani*, and therefore the combination of *Orcutt* with *Degani* cannot obviate the claim. Applicants therefore respectfully request withdrawal of the rejection and allowance of the claim.

Regarding claims 24 and 25, if an independent claim is non-obvious under 35 U.S.C. § 103, then any claim depending therefrom is also non-obvious. MPEP § 2143.03; *In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988). As discussed above, claim 23 is in condition for allowance. Applicants submit that claims 24 and 25 are therefore allowable by virtue of their dependence on an allowable independent claim, as well as by virtue of

the features recited therein. Applicants therefore respectfully request withdrawal of the rejections and allowance of the claims.

Conclusion

Given the above remarks, all claims pending in the application are in condition for allowance. If the undersigned attorney has overlooked a teaching in any of the cited references that is relevant to allowance of the claims, the Examiner is requested to specifically point out where such teaching may be found. Further, if there are any informalities or questions that can be addressed via telephone, the Examiner is encouraged to contact the undersigned attorney at (206) 292-8600.

Charge Deposit Account

Please charge our Deposit Account No. 02-2666 for any additional fee(s) that may be due in this matter, and please credit the same deposit account for any overpayment.

Respectfully submitted,

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